# Intervals, Transformations, and Slope Solution (version 66)

1. The function f is graphed below.
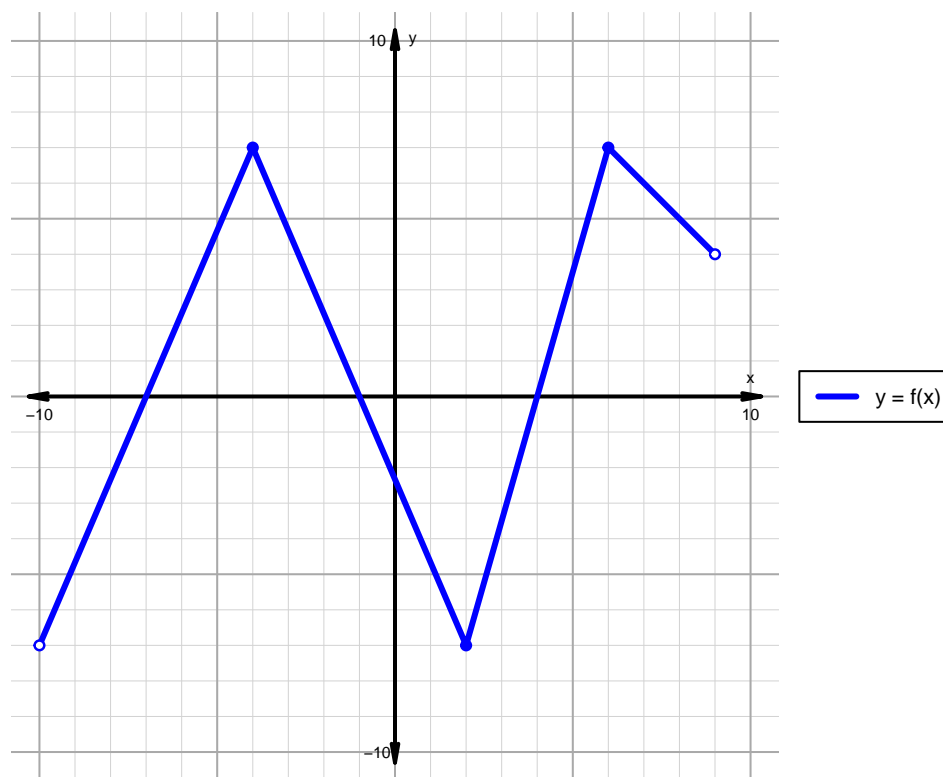
Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-7, -1) \cup (4, 9)$
Negative	$(-10, -7) \cup (-1, 4)$
Increasing	$(-10, -4) \cup (2, 6)$
Decreasing	$(-4, 2) \cup (6, 9)$
Domain	$(-10, 9)$
Range	$(-7, 7)$

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2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.

$y = 2 \cdot f(x)$

$y = f(x - 2)$

$y = f(x) - 2$

$y = f(2 \cdot x)$
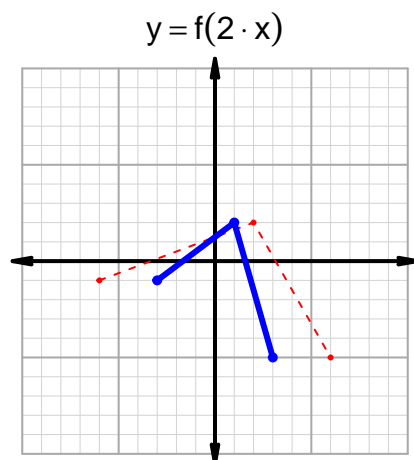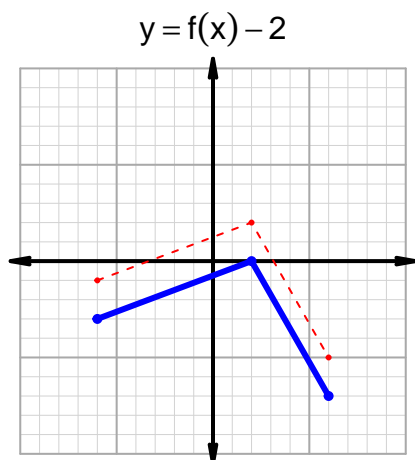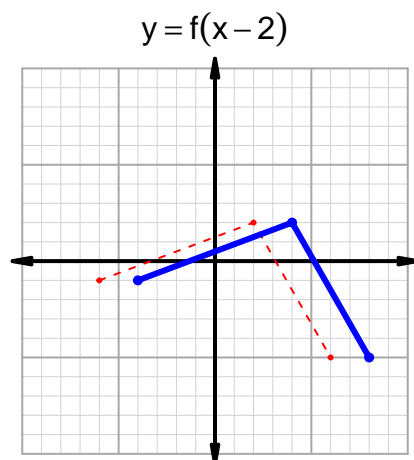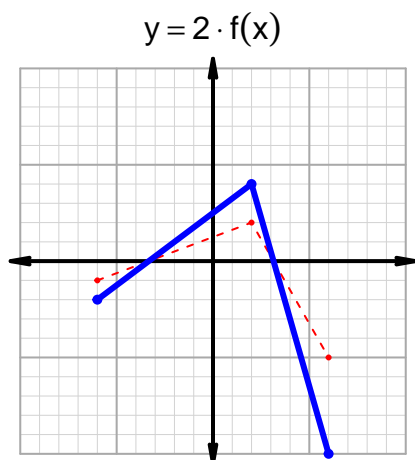
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 21$ and $x_2 = 77$. Express your answer as a reduced fraction.

x	$g(x)$
21	54
54	77
62	21
77	62

$\frac{g(77) - g(21)}{77 - 21} = \frac{62 - 54}{77 - 21} = \frac{8}{56}$

The greatest common factor of 8 and 56 is 8. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{1}{7}$$